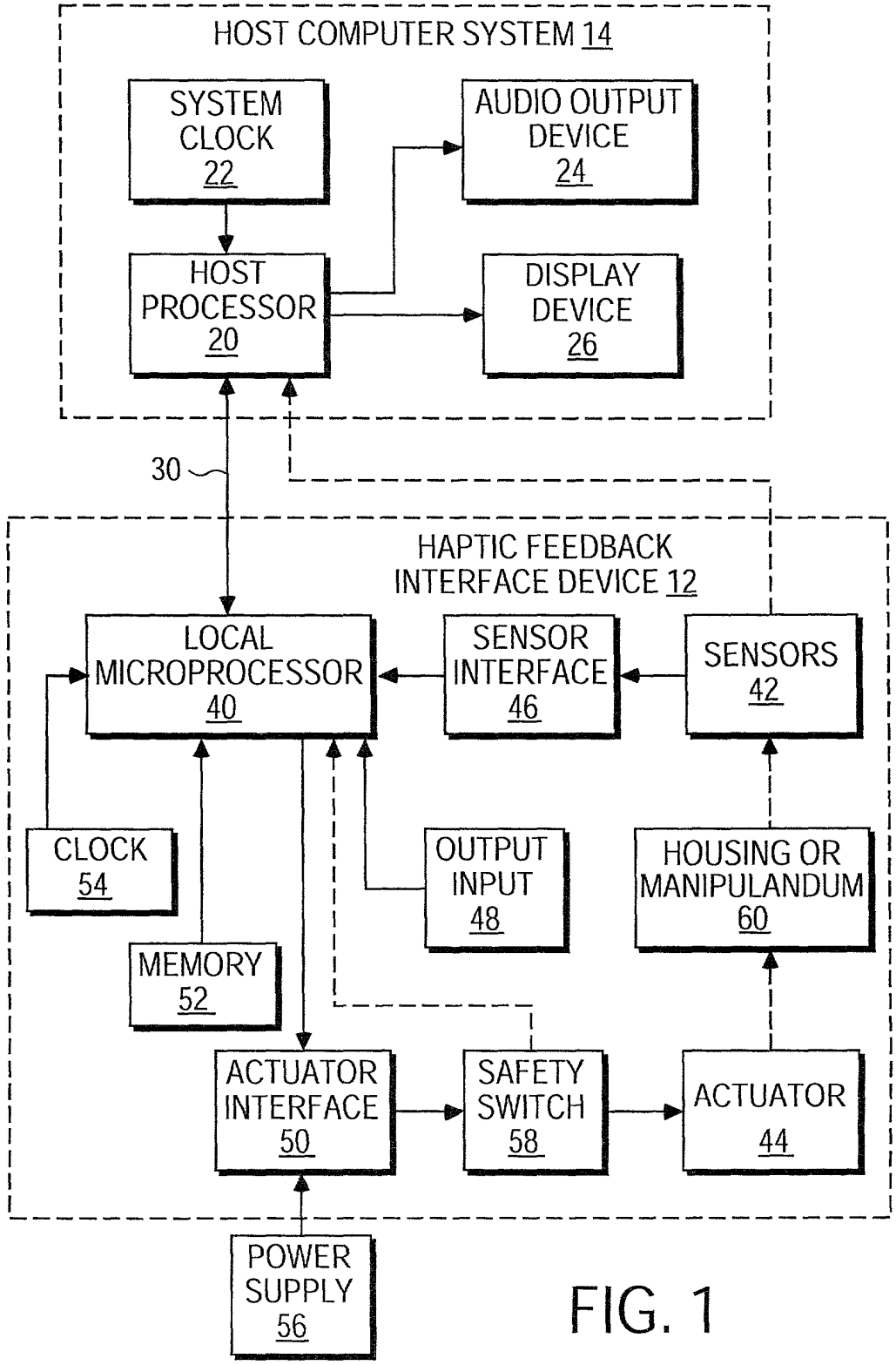
HOST COMPUTER SYSTEM 14
SYSTEM CLOCK 22
AUDIO OUTPUT DEVICE 24
HOST PROCESSOR 20
DISPLAY DEVICE 26
30
HAPTIC FEEDBACK INTERFACE DEVICE 12
LOCAL MICROPROCESSOR 40
SENSOR INTERFACE 46
SENSORS 42
CLOCK 54
OUTPUT INPUT 48
HOUSING OR MANIPULANDUM 60
MEMORY 52
ACTUATOR INTERFACE 50
SAFETY SWITCH 58
ACTUATOR 44
POWER SUPPLY 56

FIG. 1

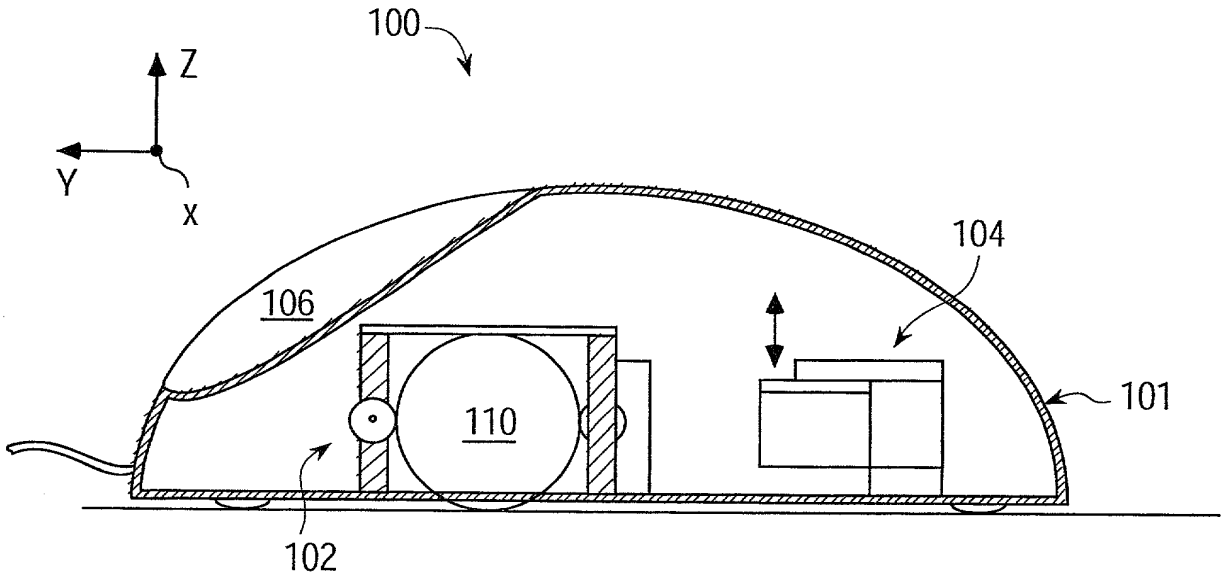

FIG. 2

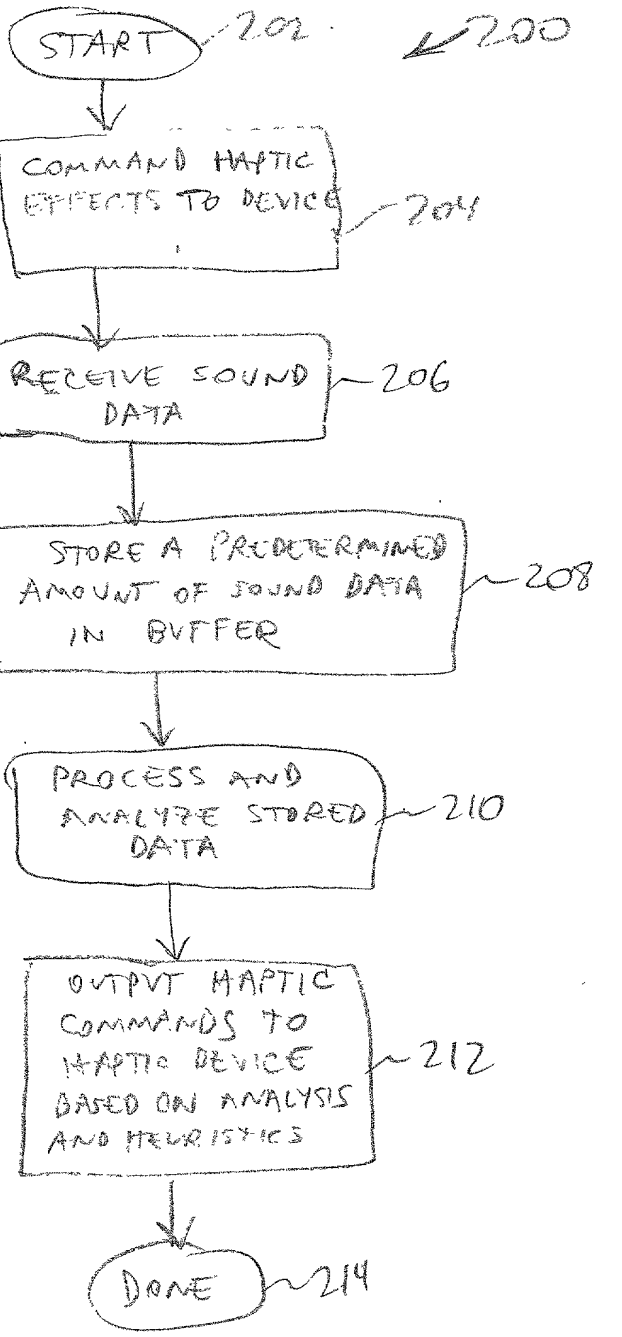
START
202
200
COMMAND HAPTIC EFFECTS TO DEVICE
204
RECEIVE SOUND DATA
206
STORE A PREDETERMINED AMOUNT OF SOUND DATA IN BUFFER
208
PROCESS AND ANALYZE STORED DATA
210
OUTPUT HAPTIC COMMANDS TO HAPTIC DEVICE BASED ON ANALYSIS AND HEURISTICS
212
DONE
214

FIG. 3

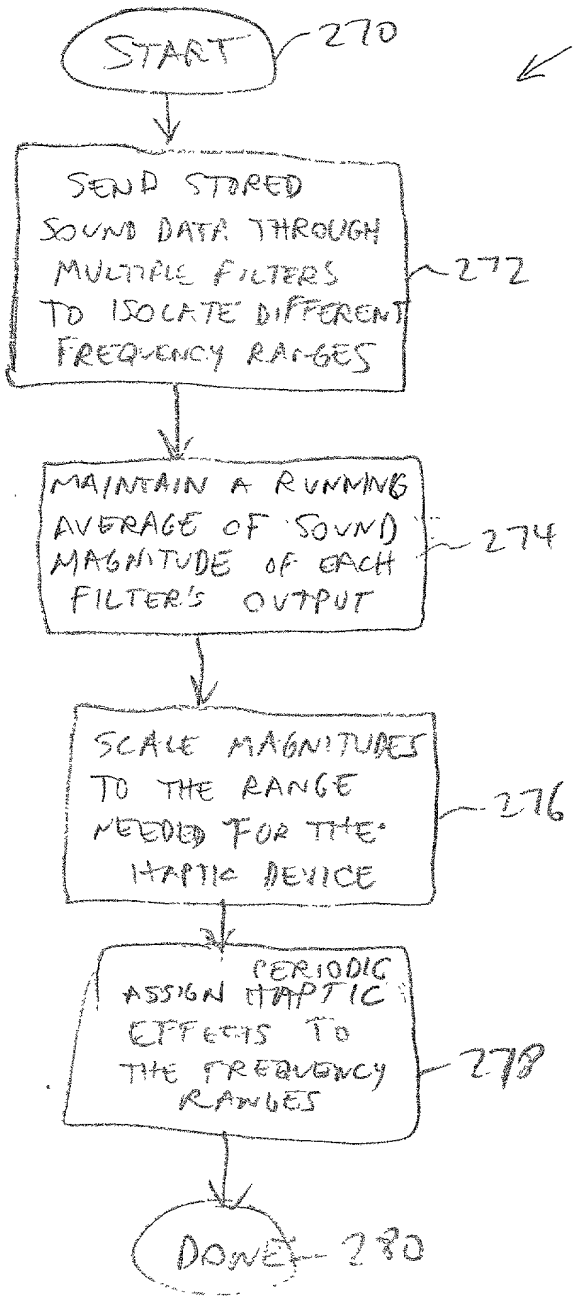

FIG. 4

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD
FILE COPY 5,541,645

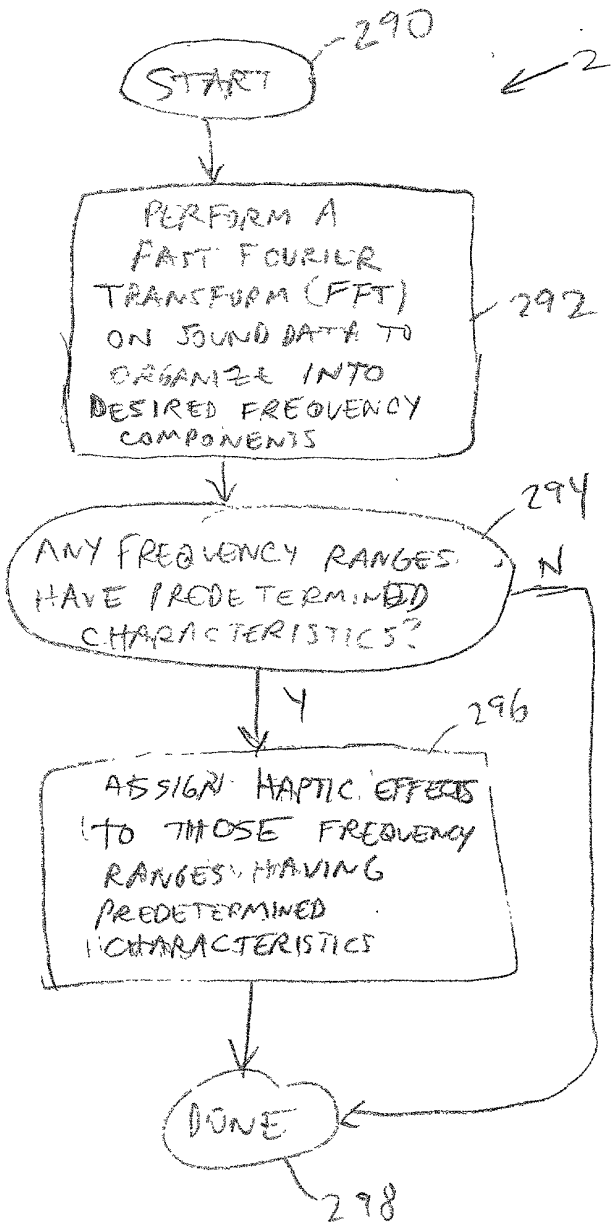
290
START
210'
PERFORM A FAST FOURIER TRANSFORM (FFT) ON SOUND DATA TO ORGANIZE INTO DESIRED FREQUENCY COMPONENTS
292
294
ANY FREQUENCY RANGES HAVE PREDETERMINED CHARACTERISTICS?
N
Y
296
ASSIGN HAPTIC EFFECTS TO THOSE FREQUENCY RANGES HAVING PREDETERMINED CHARACTERISTICS
DONE
298

FIG. 5